

Amendments to the Drawings:

The attached sheet of drawings include changes to Figs. 1-5.

REMARKS

Presently, claims 1 to 20 are pending in the application. Claim 9 stands rejected under 35 U.S.C. § 112, first paragraph. Claims 1 to 3 and 6 stand rejected under 35 U.S.C. § 102(b) over Hatanaka et al. (EP 0 321 908). Claims 4, 5, 7 and 8 stand rejected under 35 U.S.C. § 103(a) over Hatanaka et al. Claims 1 to 8 stand rejected over Hatanaka et al. in combination with Leibold (DE 2639301). Claims 9 to 12, 14 to 16, 19 and 20 stand rejected under 35 U.S.C. § 103(a) over the Cummings et al. US Patent No. 4,744,951 and Hatanaka. Claims 13, 17 and 18 stand rejected under 35 U.S.C. § 103(a) over Hatanaka inv view of Hatanaka et al. US Patent No. 4,797,255. Claims 9 to 12, 14, 16, 19 and 20 stand rejected under 35 U.S.C. § 103(a) over Cummings et al., Hatanaka and Leibold. Claim 15 stands rejected under 35 U.S.C. § 103(a) over Cummings et al., Hatanaka, Leibold and the Feasey et al. US Patent No. 5,130,053. Claims 13, 17 and 18 stand rejected under 35 U.S.C. § 103(a) over Hatanaka and Leibold. The drawings, the specification and claim 16 stand objected to. Applicants respectfully traverse the rejections and request reconsideration and reexamination of the application.

The Examiner has objected to the drawings and specification as it regards errors in part numbering. New drawings are submitted herewith in which the part numbering errors have been corrected. Applicants apologize for any confusion.

The Examiner has objected to claim 16 for depending upon itself. Applicants have amended claim 16 to amend from claim 9.

The Examiner has rejected claim 9 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Specifically, the Examiner opines that the feature "admitting no carrier gas into the vaporizer" is not taught in the specification. Applicants refer the Examiner to the specification at page 7, starting on line 16. A vacuum is drawn on the chamber 22, a vacuum of approximately 1 Torr. The vaporizer 20 being fluidly connected to the chamber is therefore at the same pressure. Liquid sterilant is admitted into the vaporizer and immediately begins vaporizing due to the low pressure and the heated vaporizer. It is clear that no carrier gas is

admitted as that would destroy the vacuum. Accordingly, Applicants submit that claim 9 is adequately supported in the specification.

The Examiner has rejected claims 1 to 3 and 6 under 35 U.S.C. §102(b) over Hatanaka et al. Applicants submit that Hatanaka et al. lacks all of the features of these claims and therefor fails to anticipate the claimed invention. Specifically, claim 1 defines a vaporizer for vaporizing a sterilant from its liquid phase in a vapor phase sterilization system having a pressure below atmospheric pressure. Hatanaka et al. does not describe or teach operation below atmospheric pressure. Accordingly, it cannot anticipate claim 1 or the remaining claims which depend therefrom. Further, claim 1 defines a flow restriction, which the Examiner admits (see page 7 of the Office Action) that Hatanaka lacks.

The Examiner has rejected claims 4, 5, 7 and 8 under 35 U.S.C. §103 over Hatanaka et al. Hatanaka et al. fails to teach operation below atmospheric pressure and fails to teach a flow restriction. Furthermore, it would not be obvious to one of skill in the art to so modify Hatanaka et al. as it operates under a fundamentally different principal, that of entertaining the vaporized sterilant in a carrier gas which is passed through the vaporizer. Accordingly, Applicants submit that Hatanaka et al. fails to make obvious the claimed invention.

The Examiner has rejected claims 9 to 12, 14 to 16, 19 and 20 under 35 U.S.C. § 103(a) over Cummings et al. in view of Hatanaka. There is no suggestion for making the alleged combination. The Hatanaka and Cummings processes operate under fundamentally different conditions. Cummings injects liquid sterilant into a vacuum with no carrier gas whereas Hatanaka injects sterilant into a flowing carrier gas. One of ordinary skill in the art would not look to Hatanaka and its carrier gas type operation to modify the vacuum process of Cummings et al. Furthermore, even if the alleged combination were made, it would not reach the claimed invention. Claim 9 includes the step of passing the sterilant in its vapor phase through a flow restriction. There is no flow restriction. Cummings et al. shows a block diagram of two chambers with a valved

passage therebetween and the Examiner attempts to describe flow restriction status to the passage. This is unsupported in the specification and is merely a figment of the Examiner's imagination. If the process of Cummings et al. is examined logically, it becomes even more clear that one of ordinary skill in the art would see no flow restriction between these chambers. First a hydrogen peroxide solution is vaporized in the smaller chamber 10 and concentrated. After this step, it is passed to the sterilization chamber 22. One of ordinary skill in the art reading this reference would seek to have this flow be as fast and unimpeded as possible. No flow restriction is taught by Cummings et al.

The Examiner has rejected claims 13, 17 and 18 under 35 U.S.C. § 103(a) over Hatanaka in view of Hatanaka et al. Claim 9 contains the limitation of admitting no carrier gas into the vaporizer. Both of these Hatanaka references rely upon a carrier gas. Accordingly, they fail to teach the claim invention.

The Examiner has rejected under 35 U.S.C. § 103(a) claims 1 to 8, 13, 17 and 18 over Hatanaka et al. in combination with Leibold. Applicants submit that there is no suggestion for making the alleged combination.

Leibold discloses an evaporator for producing ethylene oxide and other toxic vapors and which comprises a vessel containing heated liquid into which is immersed a coiled tube. The vapors are produced in the coiled tube and a throttling device 7 limits the flow of these vapors so that too much does not flow at once and the vaporizer can run in continuous rather than batch mode. A Derwent English language abstract of Leibold was previously provided.

Hatanaka et al. heat small quantities of hydrogen peroxide in a flow of carrier gas, send it through a baffle and then send it off to condense upon a surface to perform sterilization of that surface. Hatanaka et al. do not disclose a flow restriction between the baffle and the outlet.

One of skill in the art would not be motivated to combine the teachings of Leibold with those of Hatanaka et al. Leibold lacks a good method for controlling the rate of evaporation in the tube and so includes a flow restriction to prevent surges. The arrangement of Hatanaka et al. requires no such restriction as the evaporation is easily controlled by how fast drops of hydrogen peroxide are fed through the nozzle 20. No throttle would be necessary to prevent surges and would be contraindicated as it would add an unnecessary pressure drop into the system thus reducing energy efficiency. The Examiner asserts that adding the throttle of Leibold to Hatanaka et al. would allow the apparatus of Hatanaka et al. "to be used continuously instead of only intermittently, in a controlled manner without danger to the surrounding and personnel." As can be seen, such is not necessary when the rate is controlled by the rate of drops coming out of the nozzle. Hatanaka et al. can be operated continuously without any flow restriction.

This is especially true given the use of a carrier gas. In such use one of skill in the art would want to promote good flow so as to not inhibit contact of the sterilant to the items being sterilized. Further, a flow restriction may slightly increase the danger rather than decrease it as it could cause a pressure back-up pushing the atmosphere upstream of the flow restriction closer to an explosive state. In any event, it is not needed and one of skill in the art would not be motivated to make the alleged combination.

The Examiner has rejected claims 9 to 12, 14 16, 19 and 20 under 35 U.S.C. § 103(a) over Cummings et al., Hatanaka and Leibold, and claim 15 over these three references and further Feasey et al. US Patent No. 5,130,053. As described earlier, there is no suggestion for combining the teachings of Hatanaka and Cummings et al. due to the fundamentally different nature of their processes and Cummings et al. teaches no flow restriction. Accordingly, there is no suggestion for making the alleged combination and even if made, the alleged combination would not reach the claimed invention.

Applicants submit that the application is presently in condition for allowance and request favorable reconsideration and early notice of allowance. If it would speed prosecute the Examiner is encouraged to contact the undersigned attorney by telephone.

Respectfully submitted,

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